enroute, approach, and landing configurations for the airplane.

(2) The airplane configuration may vary with weight, altitude, and temperature, to the extent that they are compatible with the operating procedures required by paragraph (h)(3) of this section.

(3) Unless otherwise prescribed, in determining the critical-engine-inoperative takeoff performance, takeoff flight path, and accelerate-stop distance, changes in the airplane's configuration, speed, and power must be made in accordance with procedures established by the applicant for operation in service.

(4) Procedures for the execution of discontinued approaches and balked landings associated with the conditions prescribed in § 23.67(c)(4) and § 23.77(c) must be established.

(5) The procedures established under paragraphs (h)(3) and (h)(4) of this section must—

(i) Be able to be consistently executed by a crew of average skill in atmospheric conditions reasonably expected to be encountered in service;

(ii) Use methods or devices that are safe and reliable; and

(iii) Include allowance for any reasonably expected time delays in the execution of the procedures.

[Doc. No. 27807, 61 FR 5184, Feb. 9, 1996, as amended by Amdt. 23–62, 76 FR 75753, Dec. 2, 2011]

§ 23.49 Stalling speed.

(a) V_{SO} (maximum landing flap configuration) and V_{S1} are the stalling speeds or the minimum steady flight speeds, in knots (CAS), at which the airplane is controllable with—

(1) For reciprocating engine-powered airplanes, the engine(s) idling, the throttle(s) closed or at not more than the power necessary for zero thrust at a speed not more than 110 percent of the stalling speed;

(2) For turbine engine-powered airplanes, the propulsive thrust not greater than zero at the stalling speed, or, if the resultant thrust has no appreciable effect on the stalling speed, with engine(s) idling and throttle(s) closed;

(3) The propeller(s) in the takeoff position;

(4) The airplane in the condition existing in the test, in which V_{SO} and V_{S1} are being used;

(5) The center of gravity in the position that results in the highest value of V_{SO} and V_{S1}; and

(6) The weight used when V_{SO} and V_{S1} are being used as a factor to determine compliance with a required performance standard.

(b) V_{SO} and V_{S1} must be determined by flight tests, using the procedure and meeting the flight characteristics specified in § 23.201.

(c) Except as provided in paragraph (d) of this section, V_{SO} at maximum weight may not exceed 61 knots for—

(1) Single-engine airplanes; and

(2) Multiengine airplanes of 6,000 pounds or less maximum weight that cannot meet the minimum rate of climb specified in § 23.67(a) (1) with the critical engine inoperative.

(d) All single-engine airplanes, and those multiengine airplanes of 6,000 pounds or less maximum weight with a V_{SO} of more than 61 knots that do not meet the requirements of § 23.67(a)(1), must comply with § 23.562(d).

[Doc. No. 27807, 61 FR 5184, Feb. 9, 1996, as amended by Amdt. 23–62, 76 FR 75753, Dec. 2, 2011]

§ 23.51 Takeoff speeds.

(a) For normal, utility, and acrobatic category airplanes, rotation speed, V_R, is the speed at which the pilot makes a control input, with the intention of lifting the airplane out of contact with the runway or water surface.

(1) For multiengine landplanes, V_R, must not be less than the greater of 1.05 V_{MC}; or 1.10 V_{S1};

(2) For single-engine landplanes, V_R, must not be less than V_{S1}; and

(3) For seaplanes and amphibians taking off from water, V_R, may be any speed that is shown to be safe under all reasonably expected conditions, including turbulence and complete failure of the critical engine.

(b) For normal, utility, and acrobatic category airplanes, the speed at 50 feet above the takeoff surface level must not be less than:

(1) For multiengine airplanes, the highest of—

(i) A speed that is shown to be safe for continued flight (or emergency